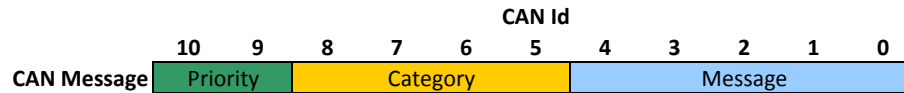


Lower SID = Higher Priority



#### Priorities (4 values)

ID[10:9]	Mnemonic	Description
0	high	Highest priority
1	default	Default priority
2	low	Low priority
3	diag	Used for diagnosis and debug messages

#### Categories (16 values)

ID[8:5]	Mnemonic	Description
0	supply	Critical messages linked with power supply and batteries managment
1	avoidance	Messages related to the robot avoidance system (except beacons)
2	beacon	Specific messages related to the beacon(s) managment
3	motion	Robot motion messages
4	actuators	Actuators related messages (except motion managment)
5	sensors	Sensors message (uncorellated with direct actuator motion)
6	<i>unused</i>	
7	<i>unused</i>	
8	system	High-level messages, related to strategy and system managment
9	<i>unused</i>	
10	<i>unused</i>	
11	<i>unused</i>	
12	<i>unused</i>	
13	<i>unused</i>	
14	boot	Bootloading messages, dedicated for self-writing over CAN purposes
15	debug	Messages which purely have a debug purpose

#### Message ID (32 per category)

##### ID [4:0]

They are all specific to the category.

#### Payload possible data types

Data type	Description
<b>bool</b>	Boolean (True or False) stored as a byte
<b>int8</b>	Byte (-128 to 127)
<b>int16</b>	Integer (-32768 to 32767)
<b>int32</b>	Integer (-2147483648 to 2147483647)
<b>int64</b>	Integer (9223372036854775808 to 9223372036854775807)
<b>uint8</b>	Unsigned integer (0 to 255) : also used for flags and states
<b>uint16</b>	Unsigned integer (0 to 65535) : also used for flags and states if than 8 is needed
<b>uint32</b>	Unsigned integer (0 to 4294967295)
<b>uint64</b>	Unsigned integer (0 to 18446744073709551615)
<b>float16</b>	Half precision float: sign bit, 5 bits exponent, 10 bits mantissa
<b>float32</b>	Single precision float: sign bit, 8 bits exponent, 23 bits mantissa
<b>float64</b>	Double precision float: sign bit, 11 bits exponent, 52 bits mantissa
<b>complex64</b>	Complex number, represented by two 32-bit floats (real and imaginary components)
<b>complex128</b>	Complex number, represented by two 64-bit floats (real and imaginary components)
<b>array</b>	Type used when the data contained in payload shouldn't be interpreted

Note: data type names are given according to Python Numpy package denomination

Category		Message		CAN Id	RTR allowed	Reccurence (msg/s)	Length (bytes)	Frame size (bits)	Frame's bus-load	Payload content				
Mnemonic	Id	Mnemonic	Id							Bitfield	Byte no.	Length	Type	Description
supply	0	status	0	0x000	yes	20	5	101	1,62%	fault	0	1	uint8	Indicates any critical fault
										battery_voltage	1	2	uint16	Main batteries voltage
										fuses_state	3	1	uint8	Fuses state for each power-supply
										emergency_stop	4	1	bool	Indicates that emergency button is pushed down
										shutdown	0	1	uint8	Command a power supply to be shutdown
avoidance	1	osiris	0	0x020	yes	20	1	63	1,01%	detection	0	1	uint8	Each bit indicates a detected object by osiris sensor (#0 to #7)
		ultrasonic	1	0x021	yes	20	2	72	1,15%	dist_0	0	1	uint8	Distance measured by US sensor #0
										dist_1	1	1	uint8	Distance measured by US sensor #1
beacon	2	status	0	0x040	yes	5	3	82	0,33%	errors	0	1	uint8	Each bit corresponds to an error flag
										turret	1	2	float16	Corresponds to the current turret speed
		command	1	0x041	no	0	1	63	0,00%	turret	0	1	uint8	Controls the turret activations (rotation, lasers, ...)
										pos_x	0	2	int16	Opponent's 1st robot X-axis position
		opponent_1_abs	2	0x042	yes	10	6	111	0,89%	pos_y	2	2	int16	Opponent's 1st robot Y-axis position
										pos_a	4	2	int16	Opponent's 1st robot absolute angular position
		opponent_1_rel	3	0x043	yes	10	4	92	0,74%	pos_d	0	2	int16	Opponent's 1st robot distance relative to the robot's front
										pos_a	2	2	int16	Opponent's 1st robot angle relative to the robot's front
		opponent_2_abs	4	0x044	yes	10	6	111	0,89%	pos_x	0	2	int16	Opponent's 2nd robot X-axis position
										pos_y	2	2	int16	Opponent's 2nd robot Y-axis position
		opponent_2_rel	5	0x045	yes	10	4	92	0,74%	pos_a	4	2	int16	Opponent's 2nd robot absolute angular position
										pos_d	0	2	int16	Opponent's 2nd robot distance relative to the robot's front
		robot_abs	6	0x046	yes	5	6	111	0,44%	pos_a	2	2	int16	Opponent's 2nd robot angle relative to the robot's front
										pos_x	0	2	int16	Absolute X-axis position from beacon computation
										pos_y	2	2	int16	Absolute Y-axis position from beacon computation
motion	3	fb_status	0	0x060	yes	20	3	82	1,31%	pos_a	4	2	int16	Absolute Angular position from beacon computation
										lock	0	1	bool	Lock feedback
										trajectory_near	1	1	bool	Flag when trajectory in end windows
										trajectory_finished	2	1	bool	Flag when trajectory ends
										pos_x	0	2	int16	Current Absolute X-axis position
										pos_y	2	2	int16	Current Absolute Y-axis position
										pos_a	4	2	int16	Current Absolute angle position
										speed_d	0	2	int16	Current linear speed
										speed_a	2	2	int16	Current angular speed
										accel_d	0	2	int16	Current linear acceleration
										accel_a	2	2	int16	Current angular acceleration
										speed_pos_max_d	0	2	int16	Maximum allowed linear positive speed
										speed_neg_max_d	2	2	int16	Maximum allowed linear negative speed
										speed_pos_max_a	4	2	int16	Maximum allowed angular positive speed
										speed_neg_max_a	6	2	int16	Maximum allowed angular negative speed
										accel_max_d	0	2	int16	Maximum allowed linear acceleration
										deccel_max_d	2	2	int16	Maximum allowed linear deceleration
										deccel_max_a	6	2	int16	Maximum allowed angular deceleration
		command	6	0x066	yes	0	7	120	0,00%	lock	0	1	uint16	Motion lock configuration
										stall	1	1	uint8	Edges-stall (1:right, 2:left, 4:front: 8:back)
										pos_reset_x	3	2	int16	Reset X position to specified value
										pos_reset_y	5	2	int16	Reset Y position to specified value
										trajectory_stop	7	1	bool	Command to stop the current trajectory

Category		Message		CAN Id	RTR allowed	Reccurence (msg/s)	Length (bytes)	Frame size (bits)	Frame's bus-load	Payload content				
Mnemonic	Id	Mnemonic	Id							Bitfield	Byte no.	Length	Type	Description
		goto	7	0x067	no	0	4	92	0,00%	pos_x	0	2	int16	Absolute X coordinate to go
										pos_y	2	2	int16	Absolute Y coordinate to go
		set_speed	8	0x068	no	0	4	92	0,00%	speed_d	0	2	int16	Set linear speed
										speed_a	2	2	int16	Set angular speed
		move_relative	9	0x069	no	0	4	92	0,00%	pos_rel_d	0	2	int16	Distance consign
										pos_rel_a	2	2	int16	Angular consign
		move_forward	10	0x06A	no	0	2	72	0,00%	pos_fwd_d	0	2	int16	Distance consign
actuators	4	move_backward	11	0x06B	no	0	2	72	0,00%	pos_bwd_d	0	2	int16	Distance consign
		turn_right	12	0x06C	no	0	2	72	0,00%	pos_r_a	0	2	int16	Angular consign
		turn_left	13	0x06D	no	0	2	72	0,00%	pos_l_a	0	2	int16	Angular consign
		blower_left	0	0x080	no	0	2	72	0,00%	position	0	1	uint8	Desired blower position
										speed	1	1	uint8	Optionnal speed of blowing
		blower_right	1	0x081	no	0	2	72	0,00%	position	0	1	uint8	Desired blower position
										speed	1	1	uint8	Optionnal speed of blowing
sensors	5	loader	2	0x082	no	0	2	72	0,00%	lift	0	1	uint8	Position of the lift actuator
										grab	1	1	uint8	Position of the grabbing actuator
		launcher	3	0x083	no	0	2	72	0,00%	speed	0	2	uint8	Launcher regulated speed command (0 = off)
		deflector	4	0x084	no	0	1	63	0,00%	deflect	0	1	bool	Launcher deflector activation
		pump	5	0x085	no	0	1	63	0,00%	pump	0	1	bool	Funny action activation
		left_color	0	0x0A0	no	5	1	63	0,25%	color	0	1	uint8	Sensed color of left RGB color sensor
		right_color	1	0x0A1	no	5	1	63	0,25%	color	0	1	uint8	Sensed color of right RGB color sensor
		cherry_color	2	0x0A2	no	5	1	63	0,25%	color	0	1	uint8	Sensed color of cherry RGB color sensor
		plate	3	0x0A3	no	5	1	63	0,25%	presence	0	1	bool	Presence of a plate
system	8	status	0	0x100	yes	1	2	72	0,06%	node	0	1	uint8	Node's id
										state	1	1	uint8	General feedback status ; by sending this the node indicates that it's alive
										state	0	1	uint8	Match state global variable
		match	1	0x101	no	0	6	111	0,00%	color	1	1	bool	Color picked for the match
										points	2	2	uint16	Current count of points (or estimation)
										timestamp	4	2	uint16	Global match timestamp. Unit: 100ms. 0 if not started
		bist_launch	2	0x102	no	0	1	63	0,00%	node	0	1	uint8	Launch Build-In-Self-Test on specified node(s)
boot	14	bist_status	3	0x103	no	0	3	82	0,00%	node	0	1	uint8	Node's id
										status	1	2	uint16	Bist status feedback for specified id
		node_0	0	0x1C0	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 0
										boot_data	1	7	array	Bootload data for node 0
		node_1	1	0x1C1	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 1
										boot_data	1	7	array	Bootload data for node 1
		node_2	2	0x1C2	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 2
										boot_data	1	7	array	Bootload data for node 2
		node_3	3	0x1C3	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 3
										boot_data	1	7	array	Bootload data for node 3
		node_4	4	0x1C4	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 4
										boot_data	1	7	array	Bootload data for node 4
		node_5	5	0x1C5	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 5
										boot_data	1	7	array	Bootload data for node 5
debug	15	node_6	6	0x1C6	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 6
										boot_data	1	7	array	Bootload data for node 6
		node_7	7	0x1C7	no	0	8	130	0,00%	boot_cmd	0	1	uint8	Bootload command for node 7
										boot_data	1	7	array	Bootload data for node 7
		printf	0	0x1E0	no	0	8	130	0,00%	node	0	1	uint8	Emitter node id
										data	1	7	array	String data: always 7 bytes (pad with 0 if string is finished)